

APPLICANT(S): L. TSOREF, et al.  
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## **ABSTRACT**

**Please replace the "Abstract" with the following:**

A method and an apparatus for estimating bone age by at least one acoustic signal in an ossification-actuated skeletal structure. The apparatus includes an acoustic transmitter and an acoustic receiver positioned facing each other so that the structure is positioned between them. The structure has at least two bones. The transmitter is adapted for transmitting a signal to cross the structure transversely. An electronic moveable gantry is provided for adjusting the position of the acoustic transmitter and the acoustic receiver in relation to the structure. A computer system is enabled to perform one or more functions to position the moveable gantry; transmit the signal by the transmitter; control the signal transmitted by the transmitter; receive the transmitted signal by the receiver; and estimate bone age responsive to the received signal by at least one bone age calculation formula.